



INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

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(21) International Application Number: PCT/NZ99/00156 (22) International Filing Date: 16 September 1999 (16.09.99) (30) Priority Data: 331908 16 September 1998 (16.09.98) NZ (71) Applicant (for all designated States except US): DSTD CONSULTANTS LIMITED [NZ/NZ]; 675 Fergusson Drive, Upper Hutt (NZ). (72) Inventor; and (75) Inventor/Applicant (for US only): BENT, Roger [GB/NZ]; 675 Fergusson Drive, Upper Hutt (NZ). (74) Agents: HAWKINS, Michael, Howard et al.; Baldwin Shelston Waters, NCR Building, 342 Lambton Quay, Wellington (NZ).		(81) Designated States: AE, AL, AM, AT, AT (Utility model), AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, CZ (Utility model), DE, DE (Utility model), DK, DK (Utility model), DM, EE, EE (Utility model), ES, FI, FI (Utility model), GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SK (Utility model), SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, ARIPO patent (GH, GM, KE, LS, MW, SD, SL, SZ, TZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG). Published <i>With international search report.</i> <i>Before the expiration of the time limit for amending the claims and to be republished in the event of the receipt of amendments.</i>
(54) Title: METHOD AND APPARATUS FOR EDITING A BROADCAST PROGRAM		
(57) Abstract		
<p>A method and apparatus for editing a program, the program comprising a plurality of adjacent program segments which run in a program sequence including at least one undesired program segment interleaved between a pair of non-adjacent desired program segments. The apparatus comprises means (300) generating a plurality of control codes, each control code being indicative of program content contained in a respective program segment; means (185) for identifying the undesired program segment(s) by comparing the control codes with previously stored personal preference data; and means (120) for generating an edited program sequence by skipping the identified undesired program segment(s) and arranging the pair of desired program segments such that they lie adjacently in the edited program sequence.</p>		
<pre> graph TD TV[156] --- LOCAL[100] LOCAL --- REMOTE[200] REMOTE --- CC_PROD[300] REMOTE --- MEM[140] REMOTE --- CC_STORAGE[370] REMOTE --- EPG[270] REMOTE --- TIME[325] </pre>		

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DISCLOSURE OF THE INVENTION

In accordance with a first aspect of the present invention there is provided a method of editing a program, the program comprising a plurality of adjacent program segments which run in a program sequence including at least one undesired program segment interleaved between a pair of non-adjacent desired program segments, the method comprising:

generating a plurality of control codes, each control code being indicative of program content contained in a respective program segment;

identifying the undesired program segment(s) by comparing the control codes with previously stored personal preference data; and

generating an edited program sequence by skipping the identified undesired program segment(s) and arranging the pair of desired program segments such that they lie adjacently in the edited program sequence.

The present invention provides a method and apparatus for automatically tailoring programs to individual preferences, including editing undesired content such as political reporting, medical operations, violence, nudity, sex, obscene language and advertisements from a program, such as a television or radio broadcast.

Programs may be categorised as suitable for specific age ranges or for individuals with certain psychological traits that are easily disturbed by certain program material, although a viewer can modify these. The categories involved cover a multitude of subject matter, only a few of the possible fields are covered here. The rapid growth of the communications industry will involve the greater availability of potentially harmful and/or offensive material, necessitating a uniform system of control for both standards and best use of available viewing time.

The program may be made up of video data, audio data, or a combination of the two. The program may be broadcast at a scheduled start time on a mass broadcast medium (eg. a conventional TV transmitter, cable or satellite network) to a plurality of viewers. Alternatively the program may be transmitted to a single viewer as part of a "video on demand" system, or over the internet. Alternatively the program may be provided on a recording medium (eg. a DVD) which is physically delivered to the viewer.

Typically the desired and undesired program segment(s) are stored, and the edited program sequence is compiled from the stored program segment(s). This is particularly advantageous for a mass broadcast TV program with inserted advertisements (which the TV station does not want removed). The entire program is stored during the scheduled broadcast, giving time for the control codes to be generated (identifying the inserted advertisements). At a later time the edited program sequence is compiled from the recorded program. In this case, the program is preferably stored with program time markers which are compared with control code time markers to identify undesired program segments.

Alternatively the edited program sequence may be generated "on the fly" without storing the undesired program segments. For example, the program may be provided to the viewer with embedded time codes (either inserted into a program being transmitted to the user, or stored on a DVD along with the program data). The viewer's system then selects only desired program segments for viewing or recording.

The control codes may be provided with the program on a previously recorded DVD. Alternatively the control codes are generated at a remote control code facility and the edited program sequence is generated at a local station, the method further comprising transmitting the control codes from the control code facility to the local station.

After the edited program sequence has been generated, the sequence (eg. a list of program time markers) may be stored. An edited program (ie. a plurality of program segments which run in the edited program sequence) can then be stored for later viewing, or viewed immediately.

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According to a second aspect of the present invention there is provided apparatus for editing a program, the program comprising a plurality of adjacent program segments which run in a program sequence including at least one undesired program segment interleaved between a pair of non-adjacent desired program segments, the apparatus comprising:

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means for generating a plurality of control codes, each control code being indicative of program content contained in a respective program segment;

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means for identifying the undesired program segment by comparing the control codes with previously stored personal preference data; and

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means for generating an edited program sequence by skipping the identified undesired program segment and arranging the pair of desired program segments such that they lie adjacently in the edited program sequence.

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For restricted adult content, the apparatus may require entering a security code, password or PIN number before viewing a program.

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The control codes are preferably information on type of program on an ongoing basis, identifying content related to many different categories. The control codes may also identify country, or region of a country where program was broadcast, TV channel, or station, where program was broadcast and type of content along with other categories to identify material being recorded.

The system and method of the present invention may be built into a new system, integrated into an existing system, or provided by an external stand-alone unit.

5 The recording and playback means may be incorporated within a single unit or may be separate units enabling programs to be played while another program is simultaneously recorded or for multiple programs to be simultaneously played or recorded. This also allows the accommodation of multiple individual preferences. The recording media may be magnetic
10 recording media such as disk drive, a writeable or re-writeable DVD or CD-ROM, RAM or other suitable random access storage media.

BRIEF DESCRIPTION OF DRAWINGS

15 An example of the present invention will now be described with reference to the accompanying drawings, in which:

Figure 1 is a diagram of the main system elements.

20 Figure 2 show a local station in detail.

Figure 3 shows a remote station in detail.

Figure 4 shows a code production facility in detail.

25

Figure 5 shoes a user validation system.

Figure 6 shows a machine check system.

30 Figure 7 is a process diagram showing the recording of a program signal into memory.

WHAT IS CLAIMED IS:

1. A method of editing a program, the program comprising a plurality of adjacent program segments which run in a program sequence including at least one undesired program segment interleaved between a pair of non-adjacent desired program segments, the method comprising:

generating a plurality of control codes, each control code being indicative of program content contained in a respective program segment;

identifying the undesired program segment(s) by comparing the control codes with previously stored personal preference data; and

generating an edited program sequence by skipping the identified undesired program segment(s) and arranging the pair of desired program segments such that they lie adjacently in the edited program sequence.

2. A method according to claim 1 further comprising storing the desired and undesired program segment(s), and compiling the edited program sequence from the stored program segment(s).

3. A method according to claim 2 further comprising:

generating and storing a program time marker for each stored program segment; and

generating a control code time marker for each control code, wherein the stored undesired program segment is identified by:

identifying an undesired control code, and locating a program segment having a program time marker corresponding with the control code time marker of the undesired control code.

4. A method according to any one of the preceding claims wherein the control codes are generated at a remote control code facility and the edited program sequence is generated at a local station, the method further comprising transmitting the control codes from the control code facility to the local station.
- 5
5. A method according to claim 4 wherein the program is broadcast on a mass broadcast medium and received substantially simultaneously from the mass broadcast medium by the remote control code facility and the local station.
- 10
6. A method according to claim 4 further comprising transmitting the program from the remote control code facility to the editing station.
- 15
7. A method according to any one of the preceding claims further comprising storing an edited program comprising a plurality of program segments which run in the edited program sequence.
- 20
8. A method according to any one of the preceding claims further comprising displaying an edited program comprising a plurality of program segments which run in the edited program sequence.
- 25
9. A method according to any one of the preceding claims further comprising storing edited program sequence data which is indicative of the desired program segments which make up the edited program sequence.
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10. A method according to claim 9 and claim 3 wherein the edited program sequence data comprises a list of program time markers.
11. Apparatus for editing a program, the program comprising a plurality of adjacent program segments which run in a program sequence including

at least one undesired program segment interleaved between a pair of non-adjacent desired program segments, the apparatus comprising:

means for generating a plurality of control codes, each control code being indicative of program content contained in a respective program segment;

means for identifying the undesired program segment by comparing the control codes with previously stored personal preference data; and

means for generating an edited program sequence by skipping the identified undesired program segment and arranging the pair of desired program segments such that they lie adjacently in the edited program sequence.

12. Apparatus according to claim 11 further comprising a memory for storing the desired and undesired program segments, and means for compiling the edited program sequence from the stored program segments.

13. Apparatus according to claim 12 further comprising:

means for generating and storing a segment time marker for each stored program segment; and

means for generating a control code time marker for each control code, wherein the stored undesired program segment is identified by:

identifying an undesired control code, and locating a program segment having a program time marker corresponding with the control code time marker of the undesired control code.

14. Apparatus according to any one of the claims 11 to 13 wherein the control codes are generated at a remote control code facility and the edited program sequence is generated at a local station, the apparatus further comprising means for transmitting the control codes from the control code facility to the local station.

15. Apparatus according to claim 14 wherein the remote code control facility and the local station each further comprise means for receiving the program from a mass broadcast medium.

16. Apparatus according to claim 14 further comprising means for transmitting the program from the remote control code facility to the editing station.

17. Apparatus according to any one of claims 11 to 16 further comprising a memory for storing an edited program comprising a plurality of program segments which run in the edited program sequence.

18. Apparatus according to any one of claims 11 to 17 further comprising a display for displaying an edited program comprising a plurality of program segments which run in the edited program sequence.

19. Apparatus according to any one of claims 11 to 18 further comprising a memory for storing edited program sequence data which is indicative of the desired program segments which make up the edited program sequence.

20. Apparatus according to claim 19 and claim 13 wherein the edited program sequence data comprises a list of segment time markers.

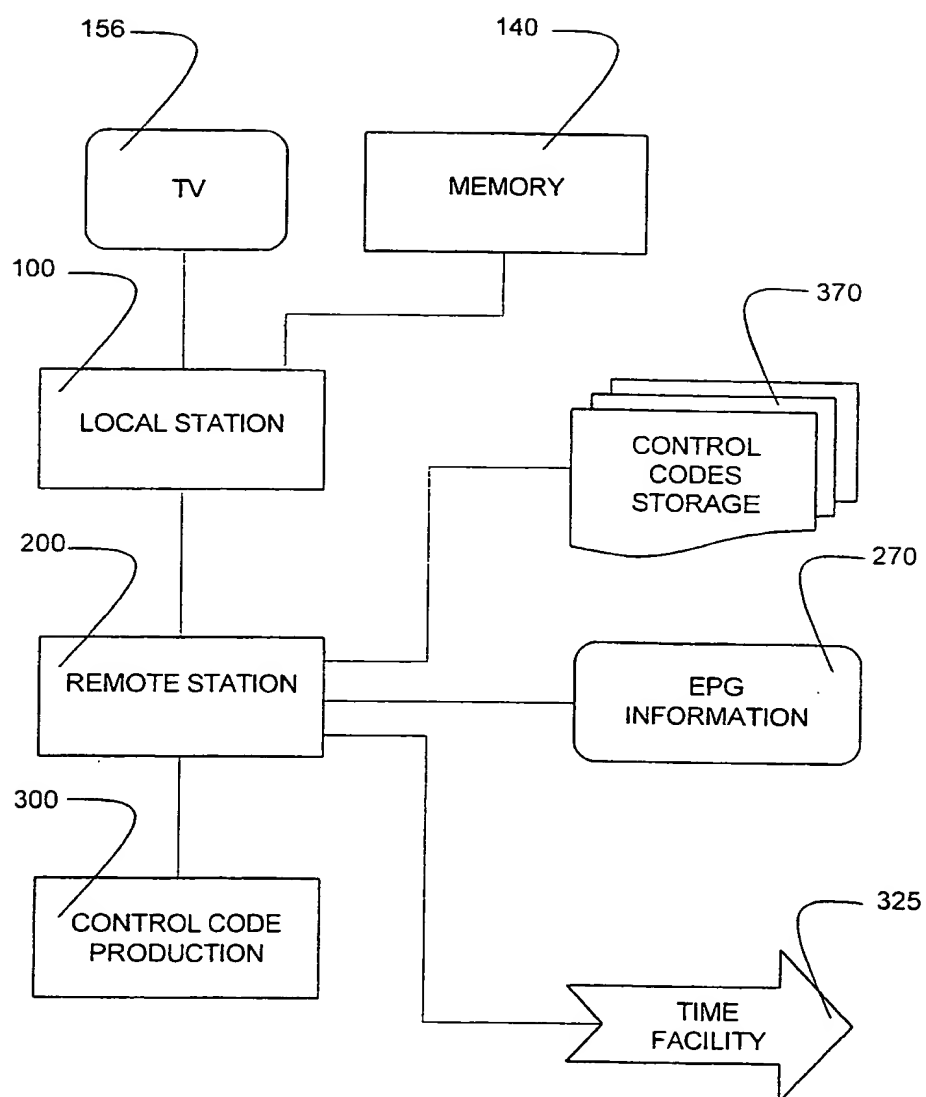


FIGURE 1

2 / 9

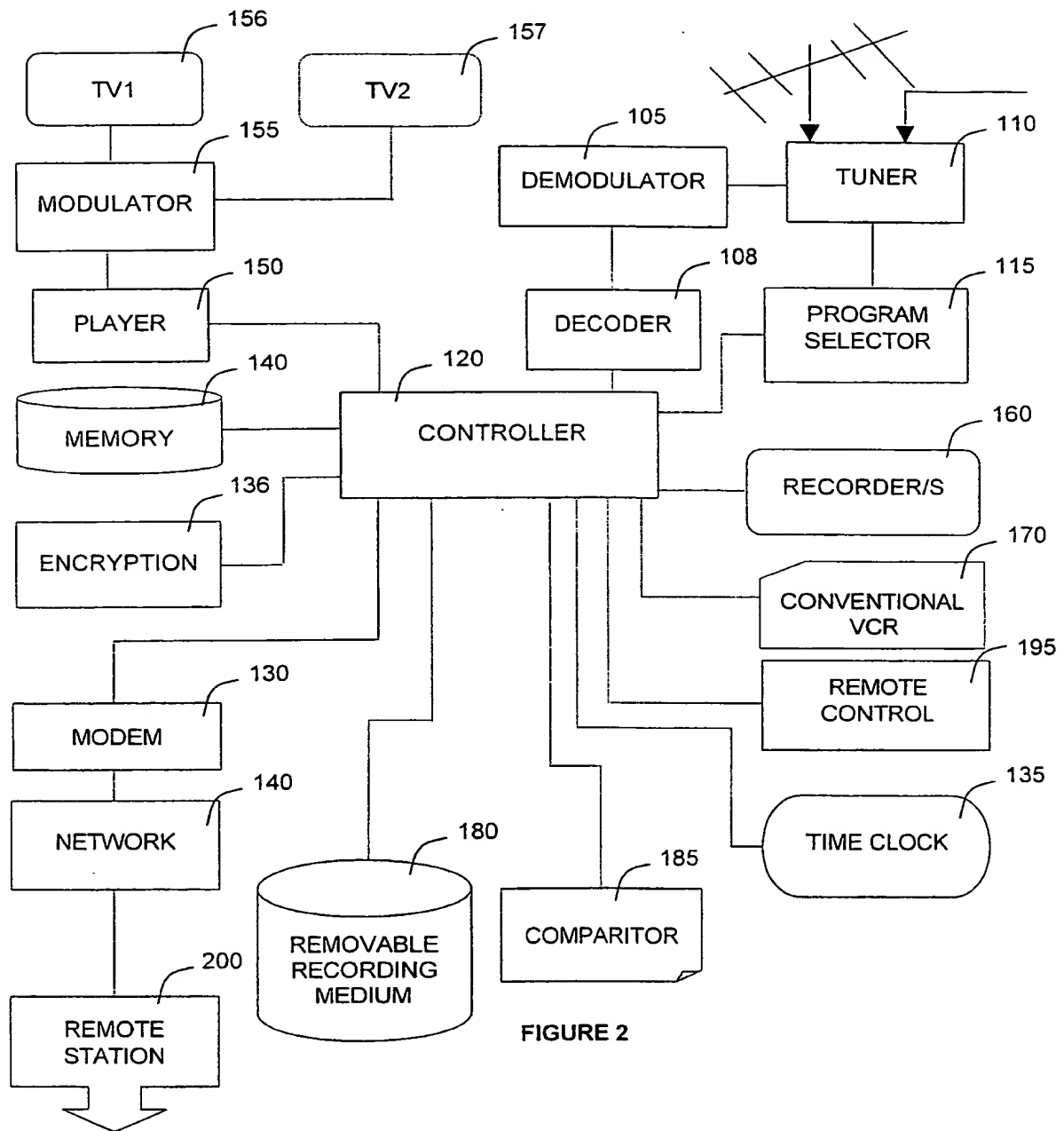


FIGURE 2

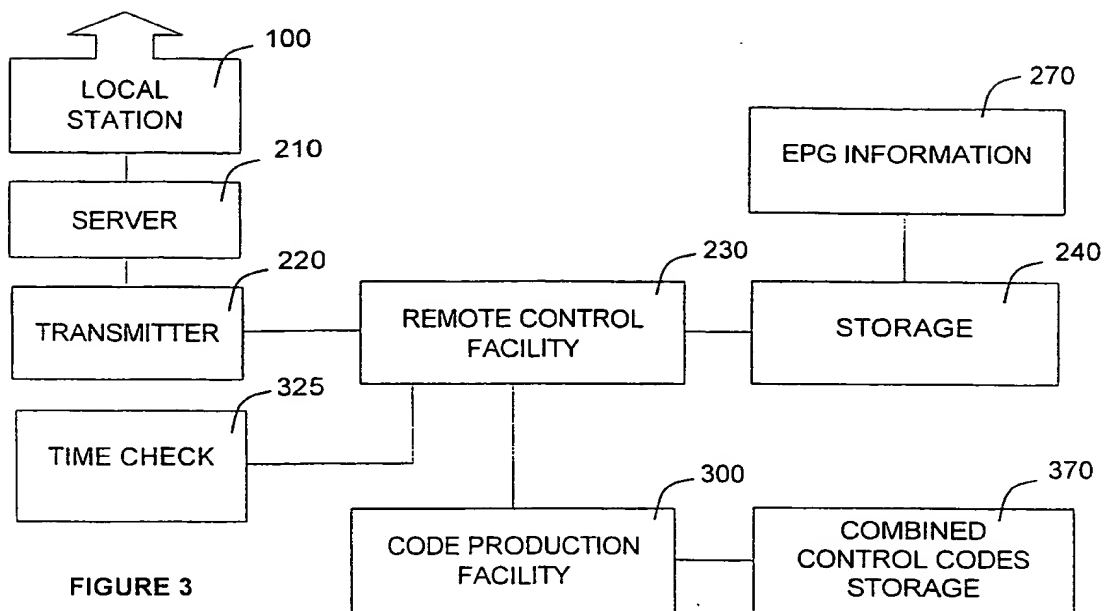


FIGURE 3

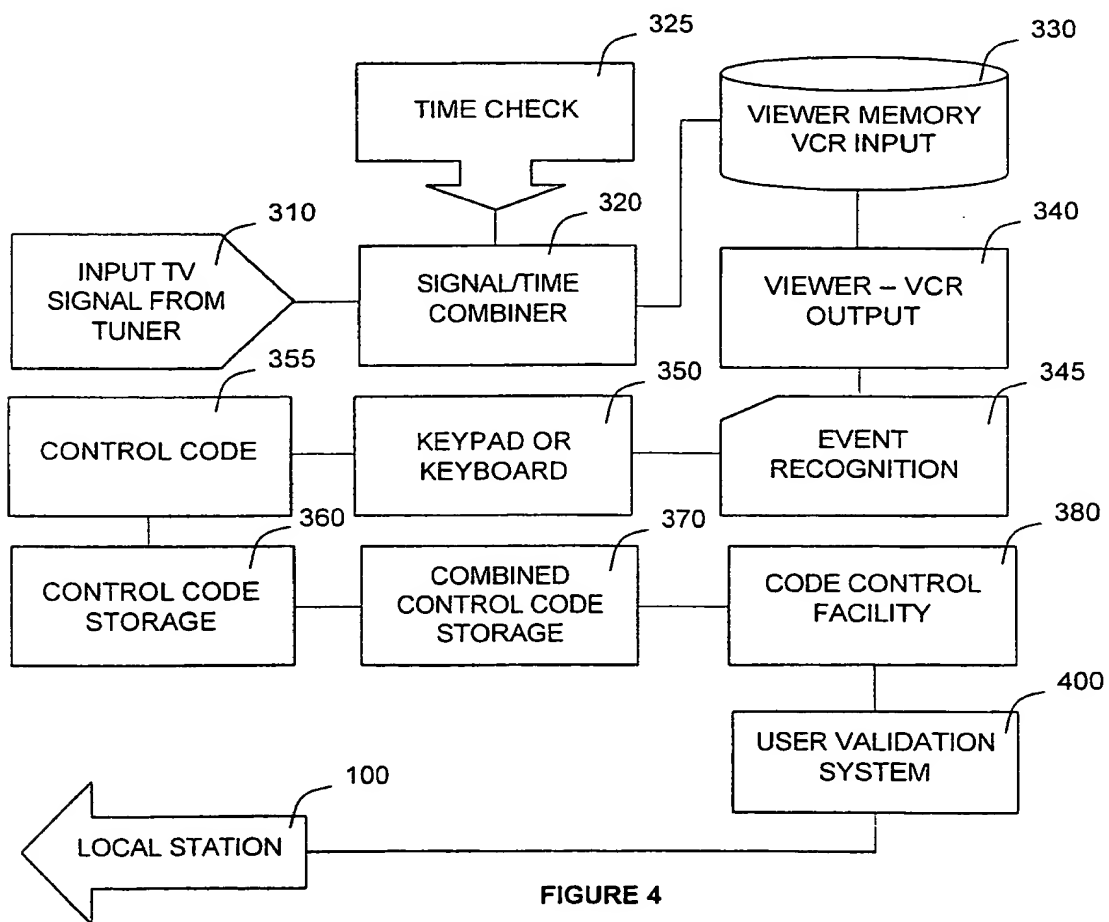


FIGURE 4

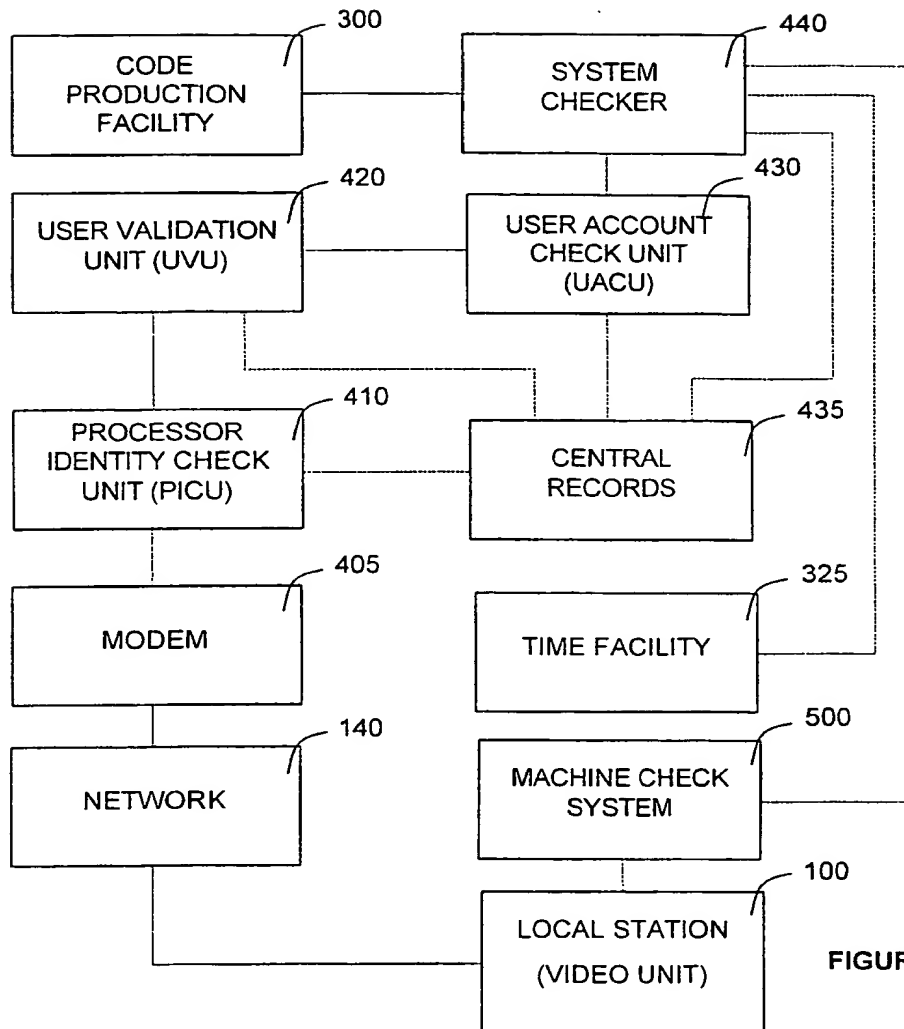


FIGURE 5

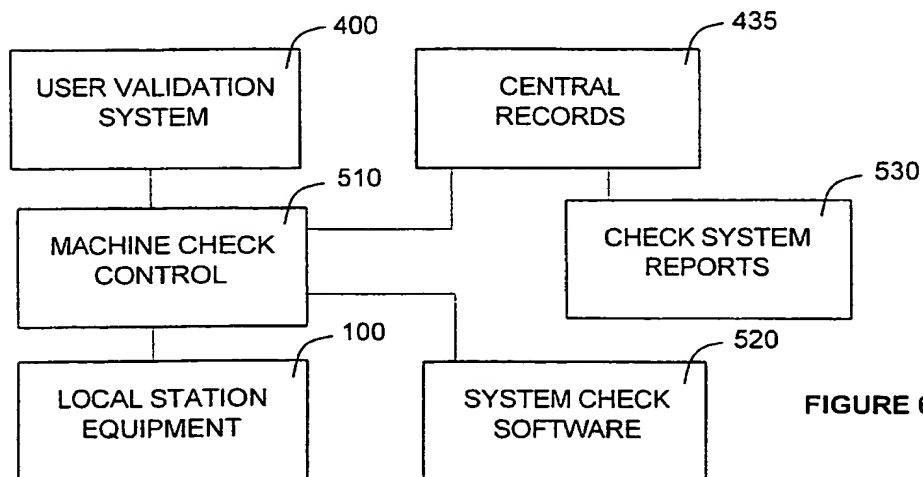


FIGURE 6

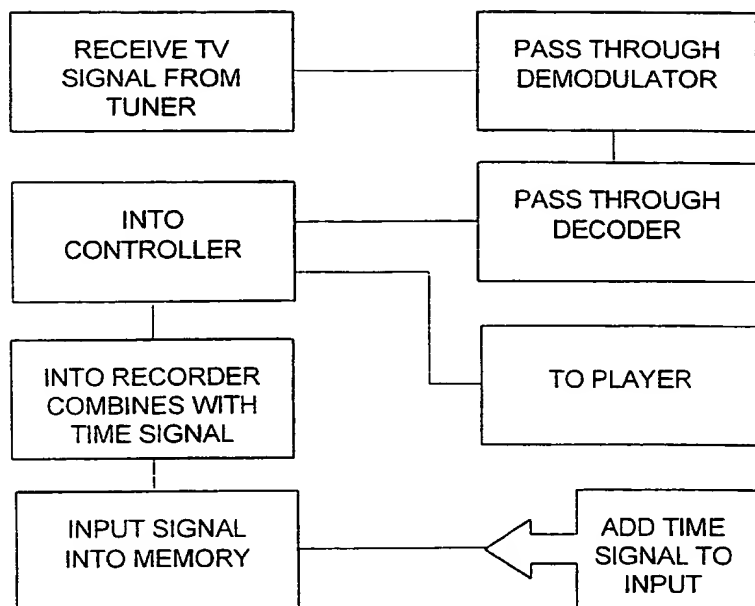


FIGURE 7

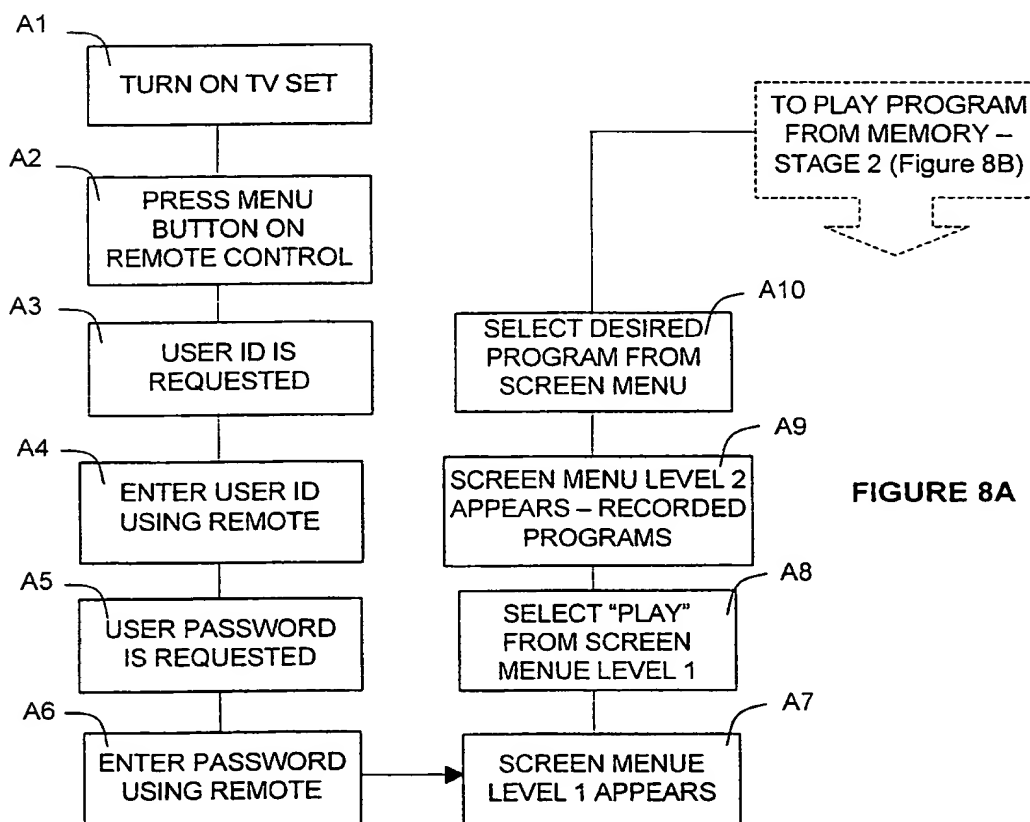


FIGURE 8A

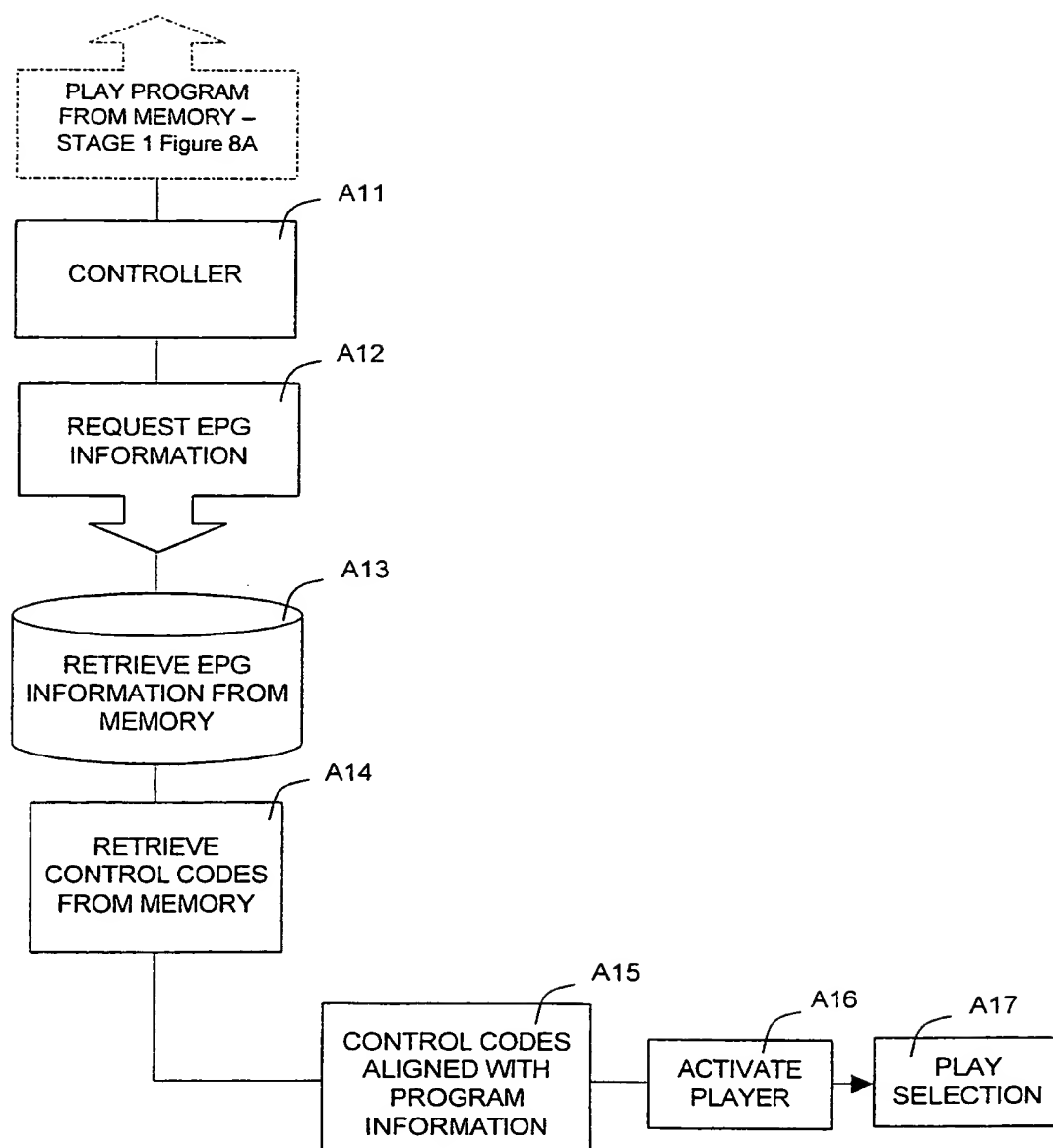


FIGURE 8B

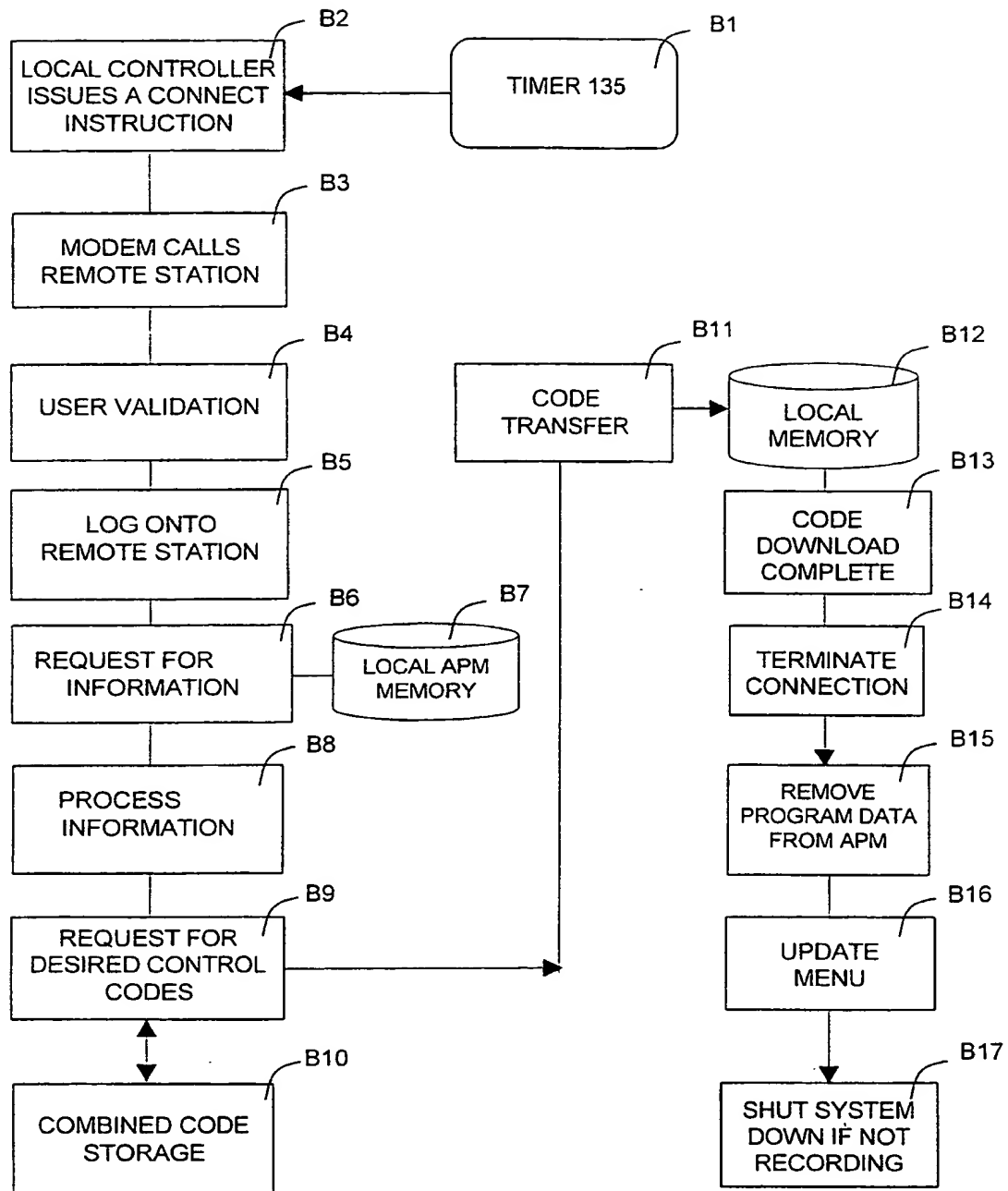


FIGURE 9

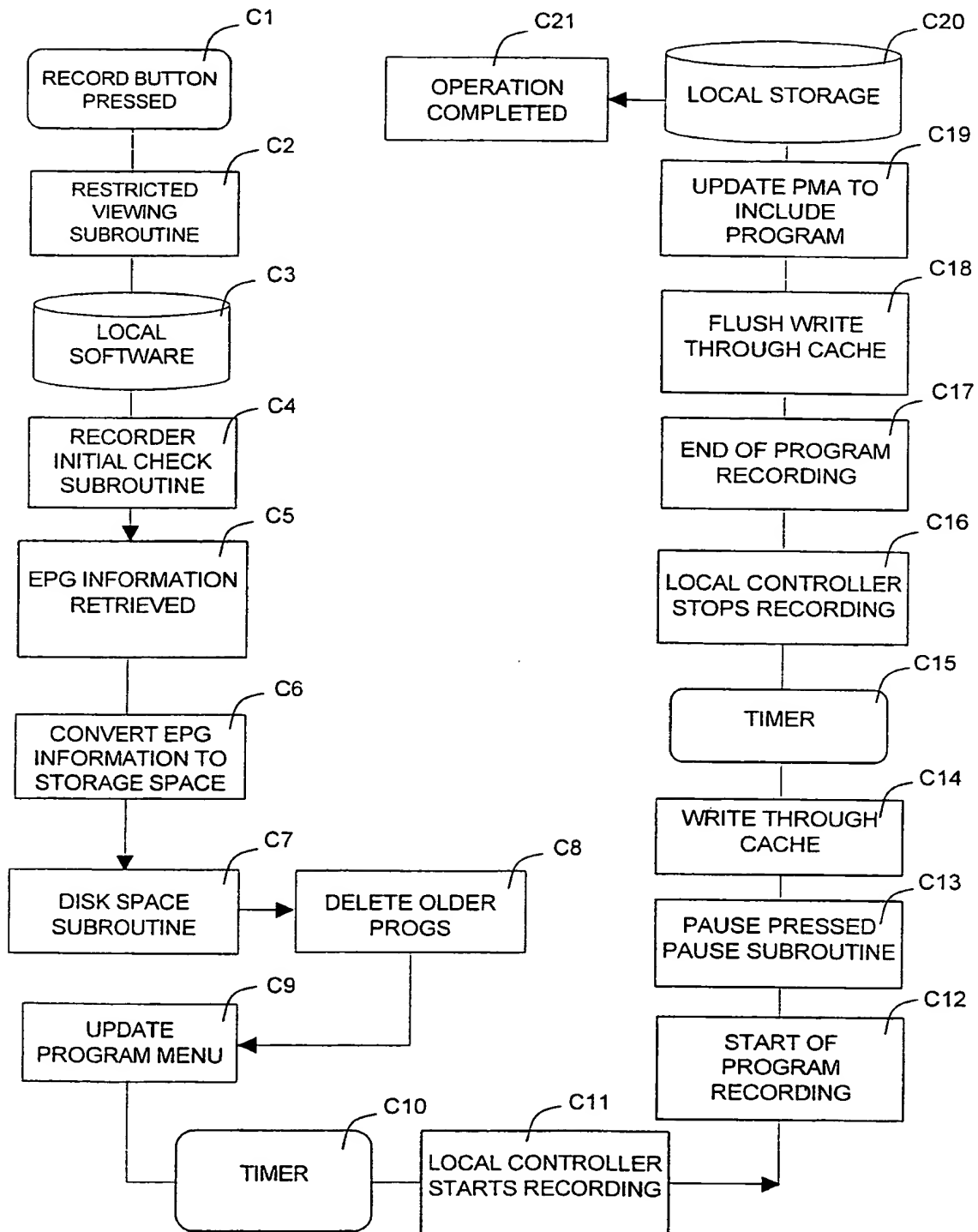


FIGURE 10

FIGURE 11A

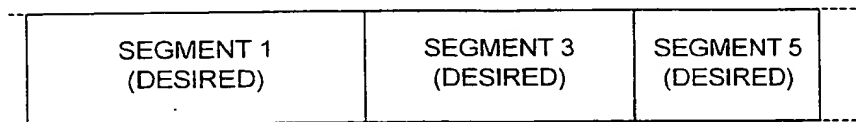
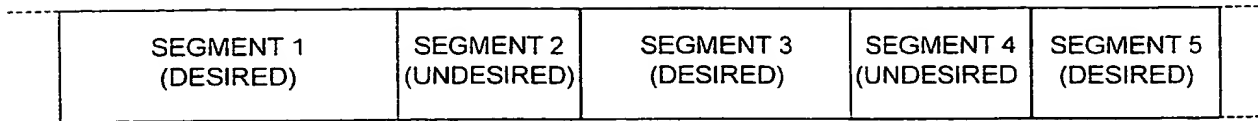


FIGURE 11B

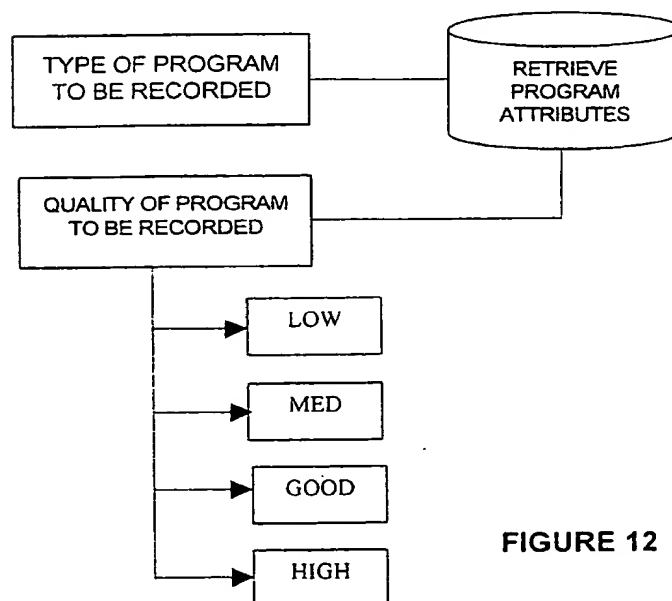
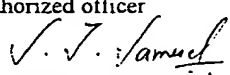


FIGURE 12

INTERNATIONAL SEARCH REPORT

International application No.

PCT/NZ 99/00156

A. CLASSIFICATION OF SUBJECT MATTER												
Int Cl ⁶ : G11B 27/00; H04N 5/275, 5/76												
According to International Patent Classification (IPC) or to both national classification and IPC												
B. FIELDS SEARCHED												
Minimum documentation searched (classification system followed by classification symbols) IPC G06F 17/60, 19/00; G11B 27/00, H04N												
Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched AU: IPC AS ABOVE												
Electronic data base consulted during the international search (name of data base and, where practicable, search terms used) WPAT: edit or cut or change or modify and program or segment and code												
C. DOCUMENTS CONSIDERED TO BE RELEVANT												
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.										
X	WO 97/23996 A1(BLOCK, Robert) 3 July 1997 See page 2, line 16 - page 4, line 2; fig 1	1,2,4-12,14-20										
X	US 4,774,600 A (BAUMEISTER) 27 September 1988 See the whole document	1,2,7-12,17-20										
X	US 4,750,213 A (NOVAK) 07 June 1988 See the whole document	1,2,4-6,11,12,14-16										
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Date of the actual completion of the international search 05 January 2000		Date of mailing of the international search report 10 JAN 2000										
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INTERNATIONAL SEARCH REPORT

International application No.
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C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 4,520,404 (VON KOHORN) 28 May 1985 See the whole document	1,2,4,5,11,12, 14,15
A	US 4,420,769 A (NOVAK) 13 December 1983 See the whole document	1-20

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Information on patent family members

International application No.
PCT/NZ 99/00156

This Annex lists the known "A" publication level patent family members relating to the patent documents cited in the above-mentioned international search report. The Australian Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

Patent Document Cited in Search Report				Patent Family Member			
WO	97/23996	AU	14234/97	EP	870402	CN	1214173
							END OF ANNEX